Name of Organization: Clemson University

Type of Organization: College or University

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Project Title: Improving SOLEC Indicator 8135: Bald Eagles

Project Category: Habitat (Ecological) Protection and Rest

Rank by Organization (if applicable): 1

Total Funding Requested ($): 56,140 **Project Duration:** 1.5 Years

Abstract:

The use of the bald eagle as an ecosystem monitor of Great Lakes Water Quality has been proposed both by the IJC as well as SOLEC. We propose to improve the eagles ability to be used in this fashion by: testing potential biomarkers for subtle effects of toxicants that would help show progress in water quality improvement; reconfiguring our current databases into GIS format for transfer to GLNPO and all LaMPs; and, creation of a web site for displaying both educational information on eagles, biosentinels, and how the eagle indicates ecosystem health and progress under the Water Quality Agreement, as well as displays data that can be given to the public without compromising the safety of nesting eagles.

Geographic Areas Affected by the Project

States:

☐ Illinois	☒ New York	☐ Superior	☐ Erie
☐ Indiana	☐ Pennsylvania	☐ Huron	☐ Ontario
☒ Michigan	☒ Wisconsin	☐ Michigan	☒ All Lakes
☒ Minnesota	☒ Ohio		

Lakes:

Geographic Initiatives:

☐ Greater Chicago ☐ NE Ohio ☐ NW Indiana ☐ SE Michigan ☐ Lake St. Clair

Primary Affected Area of Concern: All AOCs

Other Affected Areas of Concern:

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area: All BIAs

Other Affected Biodiversity Investment Areas:

Problem Statement:

The bald eagle SOLEC indicator provides a gross examination of chronic effects of persistent toxic substances on the ability of eagles to reproduce. This project would enhance this indicator by allowing us to develop measures of more sublte effects of toxic substances through the use of biomarkers; reconfigure and transfer historic data to EPA and LaMPs; and, inform the public on this SOLEC indicator.

Proposed Work Outcome:

1. Work: Testing a number of endocrine and other biomarkers in blood of nestling bald eagles and correlating concentrations of persistent toxic substances with these biomarkers. Outcome will be new biomarkers for use in improving the indicator.
2. Work: Revision of current databases including historic data for use by EPA and LaMPs in GIS systems. Outcome will be transfer of data and compatability in GIS systems.
3. Work: Construction of website on this indicator species, including ability to retrieve appropriate data by the public. Outcome will be an accessible educational and public information tool for use by the public, agencies, and NGOs.

Project Milestones:	Dates:
Project Start	08/2000
Database requirements scoped & developed	05/2001
Field Collections for Biomarkers	07/2001
Web Site Design Complete	09/2001
Test Results of Biomarkers	12/2001
Web site up and running	01/2002
Data transferred to EPA/LaMPs	04/2002
Project End	04/2002

☐ Project Addresses Environmental Justice

If So, Description of How:

☒ Project Addresses Education/Outreach

If So, Description of How:

The web site will make bald eagle data both accessible and understandable by the general public. Eagle ecology, effects of environmental toxicants, use as an ecosystem monitor species, the SOLEC indicator process, and specific information on the decline and recovery of the eagle will be included on the web site. Digital cameras will be used to document field work and images will be included on the web site

Project Budget:

	Federal Share Requested ($)	Applicant's Share ($)
Personnel:	28,000	7,000
Fringe:	2,800	1,330
Travel:	5,000	1,895
Equipment:	1,300	0
Supplies:	3,000	3,000
Contracts:	0	53,775
Construction:	0	0
Other:	0	0
Total Direct Costs:	40,100	67,000
Indirect Costs:	16,040	1,400
Total:	56,140	68,400
Projected Income:	0	0

Funding by Other Organizations (Names, Amounts, Description of Commitments):

Michigan Department of Environmental Quality: Bald Eagle Biosentinel Project $68,000 per year

Description of Collaboration/Community Based Support:

Collaborators: Immunotoxicology: Wright State University; Biomarkers, College of Veterinary Medicine, Michigan State University